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10/589,569	08/16/2006	Andras Fazakas	7862-88270	9936

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FITCH, EVEN, TABIN & FLANNERY
P. O. BOX 18415
WASHINGTON, DC 20036

EXAMINER	
PATEL, ISHWARBHAI B	
ART UNIT	PAPER NUMBER
2841	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,569	FAZAKAS, ANDRAS	
	Examiner	Art Unit	
	Ishwarbhai B. Patel	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *7-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This is in reply to amendment filed on January 8, 2010.

Claim Objections

2. Claims 1-6 are objected to because of the following informalities:

Regarding claim 1, It is not clear what additional structural limitation is added by repeating the phrase "formed entirely of a good electrical and heat conducting material.

Claims 2-6 depend upon claim 1 and inherit the same deficiency.

Appropriate correction is required.

Election/Restrictions

3. Newly submitted claims 7-12 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The newly submitted claims are directed to a method of providing a soldering terminal lead to a bus bar, classified in class: 29/832+. The original claims are classified in class 174/260.

The Inventions of newly submitted claims and the original claims are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product does not need the specific step of temporarily contacting the soldering material

with a source of heat. Further, search for both the invention will be burdensome to examiner.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 7-12 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art figure 1, hereafter Apa1, in view of Suzuki (US Patent No. 6,372,998).

Regarding claim 1, Apa1 discloses a soldering nest, provided in a solid bus bar (1) made entirely of a good electrical and heat-conducting material (specification page 3, line 5-10), for the soldering of a terminal lead (4) thereto, wherein the introduction of the terminal lead into the nest is to be effected from a first flat surface plane of the bus bar and soldering is be effected from a second (see figure), opposite parallel flat surface plane of the bus bar, wherein the nest comprises an aperture (2) that is provided in the

bus bar formed entirely of a good electrical and heat conducting material, the aperture extends between the two surface planes (see figure).

Apa1 does not disclose the aperture is formed by a conical bore which is perpendicular or approximately perpendicular to the first and second surface planes of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar; and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead and the cone angle is 30 degree.

Suzuki in figure 1 discloses a soldering nest provided in a bus bar (1), the bus bar having an aperture (see figure) for the introduction of a terminal lead (5A) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second (see figure), opposite surface plane of the bus bar, with the formed by a conical bore (see figure) which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture (see figure) whose diameter is slightly greater than the diameter of the terminal lead (see figure).

Further, forming the aperture in the conical form will facilitate better solder joint of the terminal to the bus bar with larger quantity of the solder.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the bus bar of Apa1 with the aperture formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface

plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead, as taught by Suzuki in order to have better solder connection.

Regarding the limitation cone angle being at least 30 degree, though the modified board of Apa1 does not disclose the cone angle being at least 30 degree, the angle will be selected based on the desired quantity of solder for better connection joint.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Apa1 with the cone angle of the hole at least about 30 degree, in order to improve the solder connection.

Further, it has bee held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding the limitation "soldering may be affected by application of soldering material and temporary contact with a source of heat from a second opposite surface of the bus bar" is process limitation in a product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Modified of Apa1 discloses the structure. Therefore, Apa1 meets the limitation.

Regarding claim 2, the modified structure of Apa1 further discloses that the cone angle is between 50 degree and 90 degree as applied to claim 1 above.

Regarding claim 3, the modified structure of Apa1 further discloses the terminal lead is part of a semiconductor device (specification page 3, line 5-10).

Regarding claim 4, the modified structure of Apa1 further discloses the bus bar consist of metal (as applied to claim 1 above).

Regarding claim 5, the modified structure of Apa1 further discloses the metal is copper, copper alloy or silver (specification page 3, line 5-10).

Regarding claim 6, the modified structure of Apa1 further discloses the bus bar is a stand-alone bus bar without contact, at least adjacent the conical bore, with a solid insulating material (see figure of Apa1).

6. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lynch (US Patent No. 4,001,490) in view of Steigerwalt (US Patent No. 2,912,745).

Regarding claim 1, Lynch in figure 6 discloses a soldering nest provided in a solid bus bar (10) made entirely of a good electrical and heat-conducting material (made of metal, column 1, line 45-50), for the soldering of a terminal lead (20) thereto, wherein the introduction of the terminal lead into the nest is to be effected from a first flat surface

plane of the bus bar and soldering is to be effected from a second (see figure), opposite parallel flat surface plane of the bus bar, wherein, nest comprises an aperture (15) that is provided in the bus bar formed entirely of a good electrical and heat conducting material, which extends between the two surface of the plane (see figure).

Lynch does not disclose the aperture is formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead and the cone angle is 30 degree.

Steigerwalt in figure 1 and 2 discloses a soldering nest provided in a bus bar (2), the bus bar having an aperture (6, with 3) for the introduction of a terminal lead (4) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second (see figure), opposite surface plane of the bus bar, with the formed by a conical bore (see figure 2) which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture (3) whose diameter is slightly greater than the diameter of the terminal lead (see figure).

Forming the aperture in the conical form will facilitate better solder joint of the terminal to the bus bar with larger quantity of the solder.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the bus bar of Lynch with the aperture

formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead, as taught by Steigerwalt in order to have better solder connection.

Regarding the limitation cone angle being at least 30 degree, though the modified board of Lynch doe not disclose the cone angle being at least 30 degree, Steigerwalt recites that conical bore is provided to receive extra solder to improve the soldered connection (column 1, line 25-30).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Lynch with the cone angle of the hole at least about 30 degree, in order to improve the solder connection.

Further, it has bee held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding the limitation "soldering may be affected by application of soldering material and temporary contact with a source of heat from a second opposite surface of the bus bar" is process limitation in a product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ

964, 966 (Fed. Cir. 1985). Modified of Lynch discloses the structure. Therefore, Lynch meets the limitation.

Regarding claim 2, the modified structure of Lynch further discloses that the cone angle is between 50 degree and 90 degree as applied to claim 1 above.

Regarding claim 3, the modified structure of Lynch further discloses the terminal lead is part of a semiconductor device (Steigerwalt, 5a, column 1, line 45-48. Also, the terminal 20 of Lynch is a terminal connected to a printed wiring board and the printed wiring boards are known to be used for mounting a semiconductor device, it is reasonable to consider the terminal is a part of semiconductor device).

Regarding claim 4, the modified structure of Lynch further discloses the bus bar consist of metal (Lynch, column 1, line 45-50).

Regarding claim 5, the modified structure of Lynch discloses all the features of the claimed invention as applied to claim 4 above including the bus bar is made of metal but does not explicitly disclose the metal is copper. However, the use of copper in the art is old and known due to its better electrical and thermal conductivity and commercially availability.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the modified structure of Lynch with the bus

bar made of copper, as is old and known in the art having better electrical and thermal conductivity.

Regarding claim 6, the modified structure of Lynch further discloses the bus bar is a stand-alone bus bar without contact, at least adjacent the conical bore, with a solid insulating material (see figure)

Response to Arguments

7. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) / explanation of rejection.

Further, applicant starting on page 5 of the response argues referring the previous argument that hindsight was used in combining the references because the actual teachings of the two references were incompatible, and thus one skilled in the art would not consider combining same. Applicant further argues that the secondary art of Suzuki in is not concerned with solder connection to bus bar but rather to a lead frame 1, which sandwiched between resin layers or plates 2 and 3. Actual conical aperture is formed in a burring portion 4 that is part of the lead frame and projects downwardly and penetrates the resin layer 3. Suzuki does not disclose a bus bar.

This is not found to be persuasive.

The secondary art of Suzuki was used for the teaching of the conical bore, increasing the surface area of the connection. Also, the Suzuki reference, as that of the instant invention, deals with connection of leads of a component for better electrical and

mechanical connection and has similar resultant structure. Further, any judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." In re McLaughlin 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971) and there is no requirement that an "express, written motivation to combine must appear in prior art references before a finding of obviousness." See Ruiz v. A.B. Chance Co., 357 F.3d 1270, 1276, 69 USPQ2d 1686,1690 (Fed. Cir. 2004).

The modified structure of Apa1 discloses the structure. Therefore, it meets the limitations.

Similar arguments are applicable the rejection by prior art to Lynch.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp
March 28, 2010

/Ishwarbhai B Patel/
Primary Examiner, Art Unit 2841